Amendments to the Claims:

This listing of claims will replace all prior versions, and listings, of claims in the application.

Listing of Claims:

1. (Currently amended) A heat exchanger, comprising:

a plurality of plate members made of a titanium or a titanium-based alloy;

a first set of fins brazed between two of said plurality of plate members, with a braze filler, to form a first fluid passageway therein, said braze filler being a titanium-based braze filler;

said first set of fins being made of a base metal different from said plurality of plate members;

a second set of fins brazed between one of said plate members brazed to said first set of fins and another plate member, with said braze filler, to form a second fluid passageway therein; and

said second set of fins made of a second base metal similar to or different from said plurality of plate members.

2. (Original) The heat exchanger of claim 1, wherein said braze filler is able to braze materials at a temperature of less than 1800°F.

3. (Original) The heat exchanger of claim 1, wherein said braze filler is able to braze materials at a temperature of less than 1700°F.

4. (Original) The heat exchanger of claim 1, wherein said braze filler is composed of titanium, copper, and nickel.

5. (Original) The heat exchanger of claim 1, wherein said braze filler is composed of titanium, zirconium, copper, and nickel.

6. (Original) The heat exchanger of claim 1, wherein said braze filler comprises about 35 to about 45 weight percent Ti, about 17 to about 23 weight percent Zr, about 17 to about 23 weight percent Cu and about 17 to about 23 weight percent Ni.

7. (Original) The heat exchanger of claim 1, wherein said braze filler is 40%Ti, 20%Zr, 20%Cu and 20%Ni.

8. (Original) The heat exchanger of claim 1, wherein said plurality of plate members are made of Ti-21S.

9. (Original) The heat exchanger of claim 1, wherein said first set of fins are made of a stainless steel or nickel based alloy and said second set of fins are made of a stainless steel, nickel based alloy, or titanium based alloy.

10. (Original) The heat exchanger of claim 1, wherein said first set of fins and said second set of fins are made of a metal selected from the group consisting of Type 444 stainless steel, Nickel 201, Nickel Alloy 625 and Type 347 stainless steel.

11. (Original) The heat exchanger of claim 10, wherein said first fin metal is Type 444 stainless steel.

12. (Original) The heat exchanger of claim 1, further comprising:

a third set of fins brazed between one of said plate members brazed to said second set of fins and another plate member, with said braze filler, to form a third fluid passageway therein;

said third set of fins made of a third base metal similar to or different from said plurality of plate members;

a fourth set of fins brazed between one of said plate members brazed to said third set of fins and another plate member, with said braze filler, to form a fourth fluid passageway therein; and

said fourth set of fins made of a fourth base metal similar to or different from said plurality of plate members.

13. (Original) The heat exchanger of claim 12, wherein said first fluid passageway and said third fluid passageway are in the same direction and are perpendicular to said second fluid passageway and said fourth fluid passageway.

14. (Original) The heat exchanger of claim 1, wherein said braze filler creates a bond having a tensile breaking strength of at least 300 pounds over a one square inch section of brazed fins.

15. (Original) The heat exchanger of claim 1, wherein said braze filler creates a bond without excessive erosion of said plurality of plate members.

16. (Currently amended) A heat exchanger comprising:

a plurality of plate members made of a titanium or a titanium-based alloy;

a first set of fins brazed between two of said plurality of plate members, with a braze filler, to form a first fluid passageway therein, said braze filler being a titanium-based braze filler;

said first set of fins being made of a base metal different from said plurality of plate members;

a second set of fins brazed between one of said plate members brazed to said first set of fins and another plate member, with said braze filler, to form a second fluid passageway therein;

said second set of fins made of a second base metal similar to or different from said plurality of plate members; and

said braze filler is able to braze materials at a temperature of less than 1700°F.

17. (Original) The heat exchanger of claim 16, wherein said braze filler is 40%Ti, 20%Zr, 20%Cu and 20%Ni.

18. (Original) The heat exchanger of claim 17, wherein said plurality of plate members are made of Ti-21S; and said first set of fins and said second set of fins are made of a metal selected from the group consisting of type 444 stainless steel, nickel 201, nickel alloy 625 and type 347 stainless steel.

19. (Original) The heat exchanger of claim 18, wherein said first set of fins and said second set of fins are made of type 444 stainless steel.

20. (Original) The heat exchanger of claim 16, wherein said plurality of plate members are made of Ti-21S; and said first set of fins are made of a metal selected from the group consisting of Type 444 stainless steel, Nickel 201, Nickel Alloy 625 and Type 347 stainless steel, and said second set of fins are made of a metal selected from the group consisting of Titanium-15-3-3-3, Titanium-21S, Titanium 3-2.5, CP-Ti, Type 444 stainless steel, Nickel 201, Nickel Alloy 625 and Type 347 stainless steel.

21. (Original) The heat exchanger of claim 16, further comprising:

a third set of fins brazed between one of said plate members brazed to said second set of fins and another plate member, with said braze filler, to form a third fluid passageway therein;

said third set of fins made of a third base metal similar to or different from said plurality of plate members;

a fourth set of fins brazed between one of said plate members brazed to said third set of fins and another plate member, with said braze filler, to form a fourth fluid passageway therein; and

said fourth set of fins made of a fourth base metal similar to or different from said plurality of plate members.

22. (Original) The heat exchanger of claim 16, wherein:

said braze filler creates a bond having a tensile breaking strength of at least 300 pounds over a one square inch section of brazed fins; and

said braze filler creates a bond without excessive erosion of said plurality of plate members.

23. (Original) A plate-fin type heat exchanger comprising:

a plurality of plate members made of a titanium or a titanium-based alloy;

a first set of fins brazed between two of said plurality of plate members, with a braze filler, to form a first fluid passageway therein;

said first set of fins being made of a base metal different from said plurality of plate members;

a second set of fins brazed between one of said plate members brazed to said first set of fins and another plate member, with said braze filler, to form a second fluid passageway therein;

said second set of fins made of a second base metal similar to or different from said plurality of plate members;

said braze filler comprises about 35 to about 45 weight percent Ti, about 17 to about 23 weight percent Zr, about 17 to about 23 weight percent Cu and about 17 to about 23 weight percent Ni; and

said first set of fins are made of a metal selected from the group consisting of Type 444 stainless steel, Nickel 201, Nickel Alloy 625 and Type 347 stainless steel, and said second set of fins are made of a metal selected from the group consisting of Titanium-15-3-3-3, Titanium-21S, Titanium 3-2.5, CP-Ti, Type 444 stainless steel, Nickel 201, Nickel Alloy 625 and Type 347 stainless steel.

24. (Original) The plate-fin type heat exchanger of claim 23, wherein said braze filler is composed of 40%Ti, 20%Zr, 20%Cu and 20%Ni.

25. (Original) The plate-fin type heat exchanger of claim 23, wherein:

said plurality of plate members are made of Ti-21S and;

said first set of fins and said second set of fins are made of type 444 stainless steel.

26. (Original) The plate-fin type heat exchanger of claim 23, wherein:

said plurality of plate members are made of Ti-21S and;

said first set of fins are made of type 444 stainless steel and said second set of fins are made of Ti-15-3-3-3.

27. (Original) The plate-fin type heat exchanger of claim 23, wherein:

said plurality of plate members are made of Ti-21S and;

said first set of fins are made of type 444 stainless steel and said second set of fins are made of Ti-21S.

28. (Original) The plate-fin type heat exchanger of claim 23, wherein:

said plurality of plate members are made of Ti-21S and;

said first set of fins are made of type 444 stainless steel and said second set of fins are made of Ti-3-2.5.

29. (Original) The plate-fin type heat exchanger of claim 23, wherein:

said plurality of plate members are made of Ti-21S and;

said first set of fins are made of type 444 stainless steel and said second set of fins are made of CP-Ti.

30. (Original) The plate-fin type heat exchanger of claim 23, further comprising:

a third set of fins brazed between one of said plate members brazed to said second set of fins and another plate member, with said braze filler, to form a third fluid passageway therein;

said third set of fins made of a third base metal similar to or different from said plurality of plate members;

a fourth set of fins brazed between one of said plate members brazed to said third set of fins and another plate member, with said braze filler, to form a fourth fluid passageway therein;

said fourth set of fins made of a fourth base metal similar to or different from said plurality of plate members; and

said third set of fins and said fourth set of fins are made of a metal selected from the group consisting of type 444 stainless steel, nickel 201, nickel alloy 625 and type 347 stainless steel.

31. (Original) The plate-fin type heat exchanger of claim 30, wherein said first fluid passageway and said third fluid passageway are in the same

direction and are perpendicular to said second fluid passageway and said fourth fluid passageway.

32. (Original) A plate-fin type heat exchanger comprising:

a plurality of plate members made of a titanium or a titanium-based alloy;

a first set of fins brazed between two of said plurality of plate members, with a braze filler, to form a first fluid passageway therein;

said first set of fins being made of a base metal different from said plurality of plate members;

a second set of fins brazed between one of said plate members brazed to said first set of fins and another plate member, with said braze filler, to form a second fluid passageway therein;

said second set of fins made of a second base metal different from said plurality of plate members;

a third set of fins brazed between one of said plate members brazed to said second set of fins and another plate member, with said braze filler, to form a third fluid passageway therein;

said third set of fins made of a third base metal different from said plurality of plate members;

a fourth set of fins brazed between one of said plate members brazed to said third set of fins and another plate member, with said braze filler, to form a fourth fluid passageway therein;

said fourth set of fins made of a fourth base metal different from said plurality of plate members;

said braze filler is composed of 40%Ti, 20%Zr, 20%Cu and 20%Ni; and

said first set of fins, said second set of fins, said third set of fins and said fourth set of fins are made of a metal selected from the group

consisting of type 444 stainless steel, nickel 201, nickel alloy 625 and type 347 stainless steel.

33. (Currently amended) A method for making a plate-fin type heat exchanger comprising:

brazing, with a braze filler, a first set of fins between a first and second plate member to form a first fluid passageway therein, wherein said first set of fins are made of a metal different from that of said first and second plate members and wherein said first and second plate members are made of titanium or a titanium-based alloy; and

brazing, with said braze filler, a second set of fins between one of said first and second plate members and a third plate member to form a second fluid passageway therein, wherein said second set of fins are made of a metal similar to or different from that of said first, second and third plate members, and wherein said third plate member is made of titanium or a titanium-based alloy, and wherein said braze filler is a titanium-based braze filler.

34. (Original) The method of claim 33, wherein said brazing steps are carried out at a temperature of less than 1700°F, thereby reducing erosion of said first, second and third plate members.

35. (Original) The method of claim 33, wherein:

said braze filler comprises about 35 to about 45 weight percent Ti, about 17 to about 23 weight percent Zr, about 17 to about 23 weight percent Cu and about 17 to about 23 weight percent Ni;

said first, second and third plate members are made of Ti-21S; and

said first set of fins are made of a metal selected from the group consisting of type 444 stainless steel, nickel 201, nickel alloy 625 and type 347

stainless steel, and said second set of fins are made of a metal selected from the group consisting of Titanium-15-3-3-3, Titanium-21S, Titanium 3-2.5, CP-Ti, Type 444 stainless steel, Nickel 201, Nickel Alloy 625 and Type 347 stainless steel.

36. (Original) The method of claim 35, wherein said braze filler is composed of 40%Ti, 20%Zr, 20%Cu and 20%Ni.

37. (Original) The method of claim 33, further comprising:

brazing, with said braze filler, a third set of fins between said third plate member and a fourth plate member to form a third fluid passageway therein, wherein said third set of fins are made of a metal similar to or different from that of said first, second, third and fourth plate members; and

brazing, with said braze filler, a fourth set of fins between said fourth plate member and a fifth plate member to form a fourth fluid passageway therein, wherein said fourth set of fins are made of a metal similar to or different from that of said first, second, third, fourth and fifth plate members.

38. (Original) The method of claim 33, further comprising:

orienting said first and third fluid passageways in a first direction; and

orienting said second and fourth fluid passageways in a second direction, perpendicular to said first direction.